

WHAT IS CLAIMED IS:

1 1. A method of providing service users in a
2 telecommunications network with access to a subscriber
3 service, said method comprising the steps of:

4 registering in the network, a plurality of service
5 users who subscribe to the subscriber service;

6 sending to a presence server in the network, a
7 registration message from at least one service provider
8 that is a provider of the subscriber service, said
9 registration message including service capability
10 information for the service provider; and

11 sending an identity of the service provider from the
12 presence server to the plurality of service users.

1 2. The method of providing access to subscriber
2 services of claim 1 wherein the network utilizes Session
3 Initiation Protocol (SIP) control signaling for call
4 setup and call control, and the step of sending a
5 registration message from at least one service provider
6 to a presence server in the network, includes:

7 modifying a SIP REGISTER message to include service
8 capabilities information for the service provider; and

9 sending the SIP REGISTER message from the service
10 provider to the presence server.

1 3. The method of providing access to subscriber
2 services of claim 2 wherein the step of sending a
3 registration message from at least one service provider
4 to a presence server in the network also includes sending
5 an update SIP REGISTER message from the service provider
6 to the presence server whenever the service capabilities
7 or presence state of the service provider change.

1 4. The method of providing access to subscriber
2 services of claim 3 further comprising notifying the
3 service users of changes to the service capabilities of
4 the service provider whenever the service provider sends
5 an update SIP REGISTER message to the presence server.

1 5. The method of providing access to subscriber
2 services of claim 2 wherein the service capabilities
3 information includes a specified service type, and the
4 step of storing service capability information for the
5 service provider in a presence server includes:

6 storing in the presence server, a predefined list of
7 service types that may register as service providers; and
8 matching the specified service type of the service
9 provider with one of the service types on the predefined
10 list.

1 6. The method of providing access to subscriber
2 services of claim 2 wherein the service capabilities
3 information includes a specified service type, and the
4 method further comprises the steps of:

5 determining by the presence server whether the
6 presence server supports the specified service type; and
7 sending an error message to the service provider if
8 the presence server does not support the specified
9 service type.

1 7. The method of providing access to subscriber
2 services of claim 2 wherein the step of sending a
3 registration message from at least one service provider
4 to a presence server in the network also includes
5 modifying the SIP REGISTER message to include an
6 indication of a traffic load being handled by the service
7 provider.

1 8. The method of providing access to subscriber
2 services of claim 7 further comprising, prior to sending
3 an identity of the service provider from the presence
4 server to the plurality of service users, the step of
5 analyzing the traffic load being handled by the service
6 provider to determine whether the service provider can
7 currently serve additional service users.

1 9. The method of providing access to subscriber
2 services of claim 8 further comprising, upon determining
3 that the service provider cannot currently serve
4 additional service users, the steps of:

5 classifying the service provider as present but
6 unavailable; and

7 notifying the plurality of service users of the
8 identity of the service provider, and that the service
9 provider is currently unavailable.

1 10. The method of providing access to subscriber
2 services of claim 7 further comprising, prior to sending
3 an identity of the service provider from the presence
4 server to the plurality of service users, the steps of:

5 analyzing the traffic load being handled by the
6 service provider to determine whether the service
7 provider is more lightly loaded than another registered
8 service provider that provides the subscriber service;
9 and

10 upon determining that the service provider is not
11 more lightly loaded than the other registered service
12 provider, sending an identity of the other service
13 provider from the presence server to the plurality of
14 service users.

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1 11. The method of providing access to subscriber
2 services of claim 1 wherein the subscriber service is a
3 conferencing service, and the service provider is a
4 conference server.

1 12. The method of providing access to subscriber
2 services of claim 1 wherein the subscriber service is a
3 group establishment service, and the service provider is
4 a group owner.

1 13. The method of providing access to subscriber
2 services of claim 12 wherein the group establishment
3 service is a game service, and the service provider is a
4 game server.

1 14. A method of balancing a traffic load between a
2 plurality of service providers that provide a subscriber
3 service to a plurality of service users in a
4 telecommunications network, said method comprising the
5 steps of:

6 registering in the network a plurality of service
7 providers that provide the subscriber service, said
8 service provider registering step including modifying
9 registration messages from the service providers to

10 include an indication of a traffic load being handled by
11 each service provider;

12 analyzing the traffic load indications to determine
13 a service provider that is the most lightly loaded; and

14 notifying the plurality of service users that the
15 most lightly loaded service provider is present on the
16 network.

1 15. The method of balancing a traffic load of claim
2 14 wherein the step of registering a plurality of service
3 providers includes sending an update registration message
4 from a particular service provider to the network
5 whenever the traffic load of the particular service
6 provider changes.

1 16. The method of balancing a traffic load of claim
2 15 wherein the step of analyzing the traffic load
3 indications to determine a service provider that is the
4 most lightly loaded includes re-analyzing the traffic
5 load indications after an update registration message is
6 received from any of the service providers.

1 17. A method of balancing a traffic load between a
2 plurality of conference servers that are registered in a
3 telecommunications network to provide a conferencing
4 service to a plurality of users, said method comprising
5 the steps of:

6 sending a first request message for the conferencing
7 service from a first requesting user to a presence server
8 in the network, said request message including an
9 identity of the first requesting user and a first party
10 to be connected by the conference server;

11 assigning by the presence server, a first one of the
12 plurality of conference servers to the first requesting
13 user;

14 receiving by the presence server, a second request
15 message for the conferencing service;

16 determining by the presence server, whether the
17 second request message is also from the first requesting
18 user;

19 forwarding the second request message from the
20 presence server to the first conference server, upon
21 determining that the second request message is also from
22 the first requesting user; and

23 assigning by the presence server, a second
24 conference server to the second requesting user in round-
25 robin fashion, upon determining that the second request
26 message is from a second requesting user.

1 18. A system for providing service users in a
2 telecommunications network with access to a subscriber
3 service, said system comprising:

4 at least one service provider that sends
5 registration information to the network, said
6 registration information including service capability
7 information for the service provider; and

8 a presence and instant messaging (PIM) server that
9 receives registration information and stores registration
10 information, service information, and presence
11 information for a plurality of service users and service
12 providers, said PIM server including:

13 means for determining, from the registration
14 information received from each service provider, a type
15 of service that is provided by the service provider; and

16 communication means for notifying the service
17 users of an identity of a service provider when the
18 service provider registers.

1 19. The system for providing a subscriber service
2 of claim 18 further comprising a connection node in
3 communication with the PIM server, said connection node
4 being operable to establish a connection between service
5 users who subscribe to the subscriber service and a

6 registered service provider that provides the subscriber
7 service.

1 20. The system for providing a subscriber service
2 of claim 19 wherein the network utilizes Session
3 Initiation Protocol (SIP) control signaling, and the
4 connection node is a Call State Control Function (CSCF).

1 21. The system for providing a subscriber service
2 of claim 18 wherein the system is operable to establish
3 a connection between service users who subscribe to the
4 subscriber service and a registered service provider that
5 provides the subscriber service utilizing an associated
6 Internet Protocol (IP) network.